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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/596,467

06/14/2006

Thomas Netsch

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS

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EXAMINER

LI, RUIPING

ART UNIT

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/596,467	<b>Applicant(s)</b> NETSCH ET AL.	
	<b>Examiner</b> RUIPING LI	<b>Art Unit</b> 4146	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☒ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/14/2006</u> .  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. Claims 1-11 are pending and being examined.

### ***Specification***

2. The specification of the invention is objected to because section headings are missing.

### ***Claim Rejections - 35 USC § 101***

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-9 and 11 are rejected under 35 U.S.C. 101 because the claimed invention is directed to a non-statutory subject matter.

As to claims 1-9, the claims are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court precedent<sup>1</sup> and recent Federal Circuit decisions<sup>2</sup> indicate that a statutory “process” under 35 U.S.C. 101 must (1) be tied to a particular machine or apparatus, or (2) transform a particular article to a different state or thing. This is referred to as the “machine or transformation test”,

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<sup>1</sup> *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

<sup>2</sup> *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

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whereby the recitation of a particular machine or transformation of an article must impose meaningful limits on the claim's scope to impart patent-eligibility (See *Benson*, 409 U.S. at 71-72), and the involvement of the machine or transformation in the claimed process must not merely be insignificant extra-solution activity (See *Flook*, 437 U.S. at 590"). While the instant claim(s) recite a series of steps or acts to be performed, the claim(s) neither transform an article nor positively tie to a particular machine that accomplishes the claimed method steps, and therefore do not qualify as a statutory process.

As to claim 11, the claim defines a computer program embodying functional descriptive material (i.e., a computer program or computer executable code). However, the claim does not define a "computer-readable medium or computer-readable memory" and is thus non-statutory for that reason (When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized). The scope of the presently claimed invention encompasses products that are not necessarily computer readable, and thus NOT able to impart any functionality of the recited program. The examiner suggests amending the claim(s) to embody the program on "computer-readable medium" or equivalent; assuming the specification does NOT define the computer readable medium

<sup>1</sup> *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

<sup>2</sup> *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

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as a “signal”, “carrier wave”, or “transmission medium” which are deemed non-statutory (refer to “note” below). Any amendment to the claim should be commensurate with its corresponding disclosure.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 and 7-11 are rejected under 35 U.S.C. 102(b), as being anticipated by Moshfeghi (**US Patent, 5,633,951**).

As to claim 1, Moshfeghi discloses a method for the computer-assisted visualization of a three-dimensional anatomical object (**a method for registering two volumetric images, see column 2 lines 46-49 and Fig.1**), comprising the following method steps: a) recording two or more diagnostic image data records of the object (**MRI and CT images, see column 4 lines 10-13, and Fig.1 elements 12 and 14**); b) defining an imaging specification for imaging the image data (**imaging, see col. 4 lines 15-19, wherein the images are either obtained by obtaining 2D slices, without translating the table, and combined to form a 3D image or obtaining a 3D image wherein the table is translated respective to the imaging device. This is read as defining an**

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**imaging specification for imaging the data since the method has to be specified of which way to obtain the images.)** onto a two-dimensional display plane (**2D image display, see column 4 lines 65-67 and column 5 lines 1-4, and 20 of Fig.1**), wherein in order to define the imaging specification anatomical features (**bones and tumors are read as the anatomical features, see column 4 lines 22-27**) of the object ( **the body is read as the object, see col.4 lines 12-13**) are identified in at least one of the image data records (**see column 4 lines 22-27**); c) calculating a combined two-dimensional representation by imaging the two or more image data records (**an image combining display processor, see column 4 lines 65-67 and column 5 lines 1-4, and 18 of Fig.1**) according to the previously defined imaging specification onto the common display plane (**image display in selected views, see column 5 lines 2-4 and 20 of Fig.1**).

As to claim 2, Moshfeghi discloses a method as claimed in claim 1, wherein in order to define the imaging specification, an object volume (**region of a human patient, see column 4 lines 11-15**) delimited by a curved surface (**contour extraction in voxels, see column 5 lines 32-34**) is determined in which the anatomical features of the object that are to be identified are contained (**bones, tumors and soft tissues, see column 4 lines 22-27**).

As to claim 3, Moshfeghi discloses a method as claimed in claim 2, wherein according to the imaging specification, a projection of the image information of the data records

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that is contained in the object volume is calculated during the calculation of the two dimensional representation (**produce selected views in 2D image, see column 5 lines 2-4**).

As to claim 4, Moshfeghi discloses a method as claimed in claim 3, wherein in order to calculate the two-dimensional representation, Cartesian coordinates within the display plane are assigned to non-Cartesian surface coordinates of the object volume (**coordinates of the spline contour, see col.6 lines 64-66; also see polar coordinate system, col.8 lines 26-31 and  $\vec{P}_1(i)$  in Fig.5a-5b**).

As to claim 7, Moshfeghi discloses a method as claimed in claim 1, wherein at least one of the image data records comprises at least one slice image of the anatomical object (**CT and MR images, see column 4 lines 15-20**).

As to claim 8, Moshfeghi discloses a method as claimed in claim 1, wherein the image data records are recorded by means of computer tomography, magnetic resonance or ultrasound (**CT and MR images, see column 4 lines 9-15**).

As to claim 9, Moshfeghi discloses a method as claimed in claim 1, wherein the image data records are recorded using different imaging modes (**a multi-modality imaging apparatus comprising a MR imager and a CT imager, see column 4 lines 9-11**).

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As to claim 10, Moshfeghi discloses a diagnostic imaging device (**a multi-modality imaging apparatus, see column 4 lines 9-11**) with recording means for recording three-dimensional image data records of an anatomical object (**a MR imager and a CT imager, see column 4 lines 9-11**), and with computer means for visualizing the image data (**a image registration processor, see column 4 lines 57-59 and 16 of Fig.1**), wherein the computer means have program control, by means of which a method as claimed in claim 1 can be carried out.

As to claim 11, Moshfeghi discloses a computer program for a diagnostic imaging device (**a multi-modality imaging apparatus, see column 4 lines 9-11**), wherein a method as claimed in claim 1 is implemented by the computer program on the computer means of the imaging device.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moshfeghi (**US Patent, 5,633,951**), and further in view of Front et al. (U.S. patent pub. 2001/0041835 A1).



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As to claim 5, Moshfeghi discloses a method as claimed in claim 1, wherein at least one image data record comprises morphological image information of the anatomical object **(2D parallel slide images, see col.4 lines 18-19. Wherein the shape of the tumors are determined.)** Moshfeghi does not teach the feature of “at least one further image data record comprises functional image information relating to the anatomical object. Front et al. teaches to obtain functional images of the patient. It would have been obvious to one ordinary skilled in the art at the time of the invention to combine the teaching of Front et al. to the system of Moshfeghi since they are analogous in medical imaging. One ordinary skilled in the art would have been motivated to incorporate the feature of functional images of Front et al. to the system of Moshfeghi in order to monitor the real time changes taking place due to a disease.

As to claim 6, Moshfeghi discloses a method as claimed in claim 5, wherein the functional image information is obtained by evaluating temporal sequences of morphological image data of the anatomical object **(Front et al.; paragraph 0014. Functional images are temporal images in real time.)**.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Front; al. US 6567687 B2, "Method and system for guiding a diagnostic or therapeutic instrument towards a target region inside the patient's body", discloses a system for guiding diagnostic instrument in the patient's body.

Zhu et al, US 6775405 B1, "Image registration system and method using cross-entropy optimization", discloses a registration method based on cross-entropy optimization.

Verard et al. US 20040097805 A1, "Navigation system for cardiac therapies", discloses a navigation system in treatment therapy.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to RUIPING LI whose telephone number is (571)270-3376. The examiner can normally be reached on Monday- Friday 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nabil El-Hady can be reached on 571-272-3936. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RUIPING LI/  
Examiner, Art Unit 4146  
5/26/2009

/Anand Bhatnagar/  
Primary Examiner, Art Unit 2624  
June 6, 2009